



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/535,010	05/31/2005	Peter George Robin Smith	DYOUP0288US	8594
23908 7590 11/27/2007 RENNER OTTO BOISSELLE & SKLAR, LLP 1621 EUCLID AVENUE NINETEENTH FLOOR CLEVELAND, OH 44115			EXAMINER RAHLL, JERRY T	
			ART UNIT 2874	PAPER NUMBER
			MAIL DATE 11/27/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/535,010

717  
Applicant(s)

SMITH ET AL.

Examiner

Jerry T. Rahll

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,9-11 and 14-21 is/are rejected.
- 7) ☒ Claim(s) 2-8, 12-13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                               | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                      | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, filed August 31, 2007, with respect to the rejection(s) of claim(s) 1-5, 8-12, and 14-21 under Brienza or Aitken et al. have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of US Patent No. 6,549,705 to Laming et al.
2. In order to clarify matters for further prosecution, the Examiner wishes to discuss to relevant points.
3. First, a "waveguiding channel" can be a portion of a larger waveguide, so long as the waveguiding channel itself allows for guided wave propagation and is in a channel form.
4. Further, the Examiner notes that Claim 1 includes a limitation requiring the spot to have a width "related to" the width of the channel. This limitation is very broad and only requires that some relationship exists. Such a relationship could include that the spot size have some minimum width such that it is at least as wide as the channel.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**6. Claims 1 and 10-11 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,549,705 to Laming et al.**

7. Regarding Claim 1, Laming describes a method of writing a waveguide channel of increased refractive index into a sample comprising providing a sample of material (80) having a region which is photosensitive to light of a specific wavelength, generating a spot of light (at 70) at the specific wavelength, where the spot has a static periodic intensity pattern of high and low intensity fringes (see Column 3) and a width related to the width of the channel, positioning the spot within the photosensitive region (see Figure 1), and causing a relative movement (see Column 3) between the sample and the light spot along the path of the channel to define the channel.

8. Regarding Claim 10, Laming describes generating the light spot by intersecting two beams (see Figure 1) at an angle to form an interference pattern.

9. Regarding Claim 11, Laming describes the light spot generated by exposure through a phase mask (40).

***Claim Rejections - 35 USC § 103***

**10.** The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**11. Claims 9 and 14-17 rejected under 35 U.S.C. 103(a) as being unpatentable over Laming as applied to Claim 1, above.**

12. Regarding Claim 9, Laming does not specifically describe the light spot as circular. However, generation and propagation of circular spots from lasers, such as that describes by Laming, are well-known in the art. Therefore, at the time of invention, it would have been obvious to one of ordinary skill in the art to create the light spot of Laming in a circular form.

The motivation for doing so would have been to allow for known methods of beam propagation.

13. Regarding Claims 14-16, Laming does not specifically describe the paths having the claimed shapes. However, planar optical circuits having such shapes and including grating structures are well-known in the art. At the time of the invention, it would have been obvious to one of ordinary skill in the art to use the claimed paths in the method of Laming. The motivation for doing so would have been to form well-known circuits.

14. Regarding Claim 17, Laming does not specifically describe repeating the positioning of the spot and causing relative movement to define additionally, substantially similar channels. However, repetition of a method to create substantially similar devices is well-known in the art. At the time of the invention, it would have been obvious to one of ordinary skill in the art to repeat the method of Laming to produce substantially similar optical channels. The motivation for doing so would have been to efficiently re-use the manufacturing set up.

**15. Claims 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laming as applied to claim 1 above, and further in view of US Patent No. 6,221,566 to Kohnke et al.**

16. Regarding Claims 18-21, Laming describes a method of writing a waveguide, as discussed above. Laming does not describe loading the region with hydrogen or deuterium. Kohnke et al. describes loading a photosensitive region with hydrogen or deuterium and heating

the region to lock the hydrogen or deuterium (see Abstract and Columns 1-3). At the time of invention, it would have been obvious to one of ordinary skill to use the loading and locking methods of Kohnke et al. with the writing process of Laming. The motivation for doing so would have been to enhance the photosensitivity of the material used by Laming.

***Allowable Subject Matter***

17. Claims 2-8, 12, and 13 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
18. Claim 2 describes the relative movement producing a uniform change in refractive index. The method of Laming, however, produces a grating structure, which inherently requires a non-uniform refractive index.
19. Claims 3-8 describe exposure to the light spot as discontinuous. There is no structure in the device of Laming capable of interrupting the light exposure. Nor is there any suggestion to modulate the laser source in such a manner.
20. Claim 12 describes the low intensity fringes having intensity greater than zero. There is no suggestion of such fringes in the teachings of Laming.
21. Claim 13 describes the spot generated from polarised light. There is no suggestion of the use of polarised light by Laming.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry T. Rahll whose telephone number is (571) 272-2356. The examiner can normally be reached on M-F (9:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

Application/Control Number:  
10/535,010  
Art Unit: 2874

Page 7

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jerry T Rahl

*M. R. Connelly-Cushwa*  
MICHELLE CONNELLY-CUSHWA  
PRIMARY EXAMINER  
11/26/07